

FY 2008 Progress Report for the Headquarters, United States Army Garrison, Fort Bliss, Texas Seed Production and Source-Identified Germplasm Release of Mesa Dropseed and Spike Dropseed from Fort Bliss

Interagency Agreement: FB#W6CLAA-08024-MOA 111R

David R. Dreesen
Los Lunas Plant Materials Center
US Department of Agriculture–Natural Resources Conservation Service

In managing military training lands, enhancing these assets for current training missions, and conserving them for future training, Fort Bliss has a need to preserve the native plant resources and revegetate these assets for training requirements. Fort Bliss requires that restoration of native plants will be accomplished using germplasm from populations as closely related genetically and ecologically as possible to the existing populations on the military training lands. This is being accomplished through the Army's Integrated Training Area Management (ITAM) program, and through the Land Rehabilitation and Maintenance (LRAM) portion of the ITAM program.

The intent of this project is for the USDA-NRCS Los Lunas Plant Materials Center (LLPMC) to develop source-identified, germplasm releases that will be made available to commercial seed growers in the Southwest. The goal is to eventually produce a sufficient amount of seed for large-scale rehabilitation and restoration projects.

Seed Collection, Seed Cleaning, and Plug Seedling Propagation

Fort Bliss LRAM staff developed a list of preferred grass species for revegetation purposes on Fort Bliss with an initial emphasis on mesa dropseed (*Sporobolus flexuosus* (Thurb. ex Vasey) Rydb.) and spike dropseed (*Sporobolus contractus* Hitchc.). LRAM personnel collected seed at Fort Bliss during the middle of October 2007. The collected seed was sent to the LLPMC for cleaning, producing plug seedlings, and installing the seedlings into production fields.

Mesa dropseed was cleaned on 11/1/07 and yielded 152 grams of cleaned seed. The spike dropseed was cleaned on 10/24/07 and yielded 25 grams of cleaned seed.

Plugs trays with 341 cells (each cell measuring ¾" x ¾" x 2½") were filled with a sphagnum peat moss/perlite media. The media incorporated micro-pellet, controlled-release fertilizer to provide major and minor nutrients. The seed was sown by diluting it with one cup of media and then dispersing it through a large, mesh, soil sieve to achieve uniform seed distribution.

- Mesa dropseed – On 5/27/08, 45 plug flats (15,000 plugs) of Fort Bliss mesa dropseed were sown at a rate of 3 cc of seed per flat.
- Spike dropseed – On 4/22/08, 20 plug flats (6,800 plugs) of Fort Bliss spike dropseed were sown at a rate of 1 cc of seed per flat.

The seeded plug trays were placed on a greenhouse bench under micro-sprinklers that automatically watered them daily for five minutes. After germination and initial seedling growth, the plug trays were set on mesh flats to allow air pruning of the roots. The trays were watered once per day and were fertilized with a balanced, soluble, nutrient solution several times a week. Several weeks before planting the seedlings into the field, they were placed in the nursery to harden off.

Seed Field Planting

When the plug seedlings had developed cohesive root balls, they were installed using a mechanical, vegetable transplanter with two people manually feeding plugs into the planter (see Figure 1). The rows were spaced 38 inches apart and the plugs were placed approximately 12 inches apart in each row. As the plugs were being installed, they were watered using a water trailer that sprayed each row. Once the entire field was planted, it was flood irrigated.



Figure 1: Mechanical transplanter used for planting grass plug seedlings.

Table 1 describes the details of the plug seedling plantings.

Table 1: Planting the Seedling Plugs at the LLPMC

Species	Planting Date	Field Number	Number of Rows (Field Length)	Total acreage
Mesa dropseed	7/8/2008	25S	43 (265 ft.)	0.95 acre
	8/7/2008	34S	6 (300 ft.)	
Spike dropseed	6/20/2008	35N	14 (300 ft.)	0.30 acre

Seed Field Maintenance

From June through September, the seed fields were flood irrigated twice a week for the first three weeks after plug planting and weekly thereafter. Weeds present in-between the rows were removed monthly with a tractor mounted cultivator with sweeps. Within the rows, weeds were removed by hand hoeing every several weeks. Field borders were sprayed with herbicide periodically. Nitrogen fertilizer will be applied in the fall of 2008.

Field Conditions as of September 2008

The spike dropseed and mesa dropseed could set a small amount of seed in the fall of 2008 which we will harvest if the seed are filled (i.e. have caryopsis).

Photos of the three fields as of early September 2008 are presented in Figures 2, 3, and 4.



Figure 2: Mesa dropseed (0.83 acre) planted July 8, 2008 in Field 25S at the Los Lunas Plant Materials Center (photo taken September 2, 2008).



Figure 3: Mesa dropseed (0.12 acre) planted August 7, 2008 in Field 34S at the Los Lunas Plant Materials Center (photo taken September 2, 2008).



Figure 4: Spike dropseed (0.30 acre) planted June 20, 2008 in Field 35N at the Los Lunas Plant Materials Center (photo taken September 2, 2008)